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DEVELOPMENT (1948) Department.

SERIES.

Letter
G.O. No. 5315

Dated 27-10-1948

[Despatch Abstract.]

Sub:- Agricultural Education - Recommendations of the Scientific Manpower Committee - Review of - Government of India replied to

SECRET

Copy of Government of India Letter No.F.21-64/47-E.III(P), dated 5th February, 1948, from the Secretary to Government of India Ministry of Education to the Secretary to Government of Madras, Department of Education

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I am directed to invite attention to the recommendations regarding certain changes in the curricula of universities and the development of existing facilities for scientific and technical study made by the Scientific Manpower Committee in their interim report (vide page 1 para 4, page 2 paras 5, 6, 7 and 4 paras 14, 15, page 5 paras 16, 17, 18, 19, 20, page 8 paras 32, 33, page 9 paras 35, page 10 paras 38, 39, page 12 paras 53 55 page 52 paras on the Agricultural College and Universities) a copy of which is forwarded herewith.

2. I am to request that the Provincial Government is so far as it concerns them may please consider these recommendations as may be acceptable to them and furnish of recommendations as may be acceptable to them and furnish the Government of India with copies of the schemes which they might propose to initiate for the purpose.

3. I am to add that the Government of India are in general agreement with the Committees recommendations regarding the introduction of necessary changes in the curricula of universities and are of the opinion that the facilities available in existing institutions for scientific and technical study should be developed and enlarged, paying special attention to certain prøriorities regarding the class of scientists and technicians needed immediately and that the double shift system should be employed for this purpose wherever possible.

/True copy/

35. Education of Agricultural personnel: It is understood that on the whole the standard of teaching in Agricultural colleges in the country is rather indifferent. Certain suggestions, which have been put forward in Dr. Mukherjee's note (Part II, Chapter III) for the improvement of the standard of education deserve serious consideration. It is essential to ensure co-ordinated development of agricultural education, for which purpose the Government should consider the desirability of establishing an Advisory Council for Agricultural Education on an All-India basis. This is specially necessary in view of the large number of agricultural personnel that would be required. For example, according to the finding of the Agricultural-Education Committee of the Central Advisory Board of Education, the Agriculture Departments alone would require during the next 10 or 15 years:--

00 Gazetted Officers.

15000 Graduated Assistants.

50000 Non-gazetted field assistants for agricultural work, and

550 Gazetted Officers.

1000 Non-Gazetted Inspectors, and 20,000 Stockmen for animal husbandry work.

36. Considering the output figures for the year 1940, ie., about 293 graduates and 290 licentiates, it is apparent that steps must be initiated without delay to implement all schemes for large scale expansion of facilities for agricultural education. Here again we have to recommend only as an interim measure the introduction of a double shift subject to thepprovisos stipulated in paragraph 4 above. In our final report, we hope to be able to make specific proposals on this point in respect of some of the existing institutions.

37. Since agricultural colleges like other professional colleges receive their intake from the general science colleges, it may be pertinent to observe that in so far as agricultural education is concerned, entry qualifications of candidates require improvement in certain ways, some of which have been referred to in Dr. Mukherjee's note.

38. In view of the urgent need for gazetted staff of the Departments of the Central, Provincial and Stated Governments, we also urge that the training programme of the Central Institutions be speeded up in all possible ways. We would specially recommend that necessary measure be taken to increase the output from the Indian Agricultural Research Institute, the Indian Veterinary Research Institute, the Indian Dairy Research Institute etc.

39. We note that the Central Agricultural College has just stated functioning and will be producing about 40 graduates in three years time and later on 60 every year. We recommend that the institutions be advised to increase the scope of the training programme so as to be able to train double the present number. The various central plans for agricultural education have been outlined in the annexure to Dr. Mukherjee's note.

For purposes of education, rese

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and their application, it is desirable to promote ecological studies which have been neglected in the past. Soil surveys on a coordinated all-India basis and establishment of a large number of experimental stations in each region distinguished by climatic and soil conditions is an immediate necessity.

A greater degree of diversification and also flexibility is necessary in the curricula of studies of universities in order that facilities for training and research in a large number of scientific subjects, especially in agriculture, can be provided for. The America unit system is a model which may be adopted with suitable modification. For example, many chemists should have the option of training in bacteriology or in plant physiology. Similarly, plant physiologists should be able to take supplementary courses in chemistry. Besides, in view of the importance of agriculture, more universities should be encouraged to open faculties of agriculture. Where the resources of any one university may not be sufficient, two or more of them may combine to establish agricultural colleges if geographical and other considerations make it feasible. The ~~rou~~ resources of universities and colleges for training in the primary sciences may be utilised to a greater extent for developing technical and agricultural education.

Extract from the Scientific Man-Power Committee Interim Committee.

CHAPTER III

Measures which can be implemented during the next six months for speeding up education, training and research in agriculture and allied subjects.

The Sub-Committee of the Scientific Man Power Committee has been asked to suggest measures which should be put into immediate operation with a view to achieving:

(a) the immediate improvement and expansion of facilities for scientific and technical training in Indian Universities and special institutions; and

(b) the promotion and development of scientific and technical research.

Since scientific and technical training and research has been found convent to treat them together.

In considering what should be done, we must first have some idea as to the existing facilities and the annual output of trained men in the different branches of agricultural science and husbandry, forestry, fisheries, and the botanical and zoological survey organizations. The information available is given in Annexure II.

Unfortunately, the information is meagre and incomplete. The matter has, however, been taken up by the Main Committee. The information should be collected within the next three months so that more definite recommendations can be made within the next six months.

The Agricultural Colleges: The standard of teaching in the agricultural colleges, is very variable and on the whole, of rather low quality; this is particularly true in those cases where matriculation is the minimum qualification of admission. The acceptance of this standard of the n ew Central Agricultural College is regretted. In Great Britain where the standard is generally considered to be higher than in this country, it has been found by the Loveday Committee on Higher Agricultural Education in England and Wales (vide their report published in 1946, extracts in England angiven in Annexure I) that the standard requires to be raised further and they have recommended that completion of the first two years of the Honour's Course (corresponding to Part I of the Tripos) should be the minimum qualification for the Bachelor's degree in Agriculture, which itself is a two years' course.

A serious drawback in the present set-up is that crop and animal husbandry are divorced from each other. This a mistake, especially in India where the prevailing system off framing is essentially one of mixed farming. Degree courses in Dairy Science and Veterinary Science are not available at all in India. The Indian Dairy Research Institute, however, offers a 15 month post graduate diploma course in the former subject and the Indian Veterinary Research Institute gives short courses in Veterinary science

mittee's report will show that different courses of studies are required for the training of agricultural graduates for different types of agricultural work, e.g for agriculture, for horticulture, for practical farmers, for husbandry work which naturally deals with both crops and live-stock for advisory work and the agricultural research. At present we have only one type of training and as stated above, with different standards. Although in some cases some alternative subjects are offered at the M.Sc. (Ag.) stage, it is neither sufficient to cover the essential range of subjects nor is the standard at all adequate. Dr. A.B. Stewart has also explained in his report to the Indian Council of Agricultural else Research the reasons for starting with graduates in pure science for training in the agricultural sciences.

There is also a pressing need for the study and development of agricultural economics and agricultural engineering which are very much neglected subjects at present. Since agricultural economics are concerned with the business side of farming and farming is essentially a business, the agricultural economist should be associated with all agricultural activity. Agricultural enginee ring also plays an essential part in agriculture, but mechanised methods and machines and implements have to be adjusted to Indian conditions.

Besides an increased in the number of courses taught there is necessity for supplementing courses open to students. For example, a soil scientwworking with minor elements must have some knowledge of plant Physiology, and a plant physiologist working on nutritional problems needs to possess a knowledge of soil science also. Facilities for training in many specialised branches are absent. OUr present system is too rigid and there is no provision for meeting requirements of the kind just referred to. Another lacuna in the present courses in agriculture is that sufficient stress is not laid on acquaintance with actual agricultural practices of the country. Agricultural graduates should be apprenticed for one year to farms and provision should be made to enable them to get a first-hand knowledge ~~should be made to enable them to get a first~~-of the life of peasants and their agricultural practices; and a certificate give to the effect that they have completed this period of apprenticeship satisfactorily. This should be made an essential qualification for appointment.

t in India there is at present no provision for effective advisory work. Men who are to undertake such work require special training and the agricultural colleges should provide for this type of students also. (The basic training necessary for advisory staff has been outlined in the Loveday report)

Besides the training of those intending to serve as scientific officers and research assistants, or as advisory staff, it is necessary to consider the training of agricultural technicians and fieldmen or kamdars who constitute a large and necessary class of staff at farms and for assisting those engaged in extension work. According to the report of the Agricultural Education, Committee of the Central Advisory Board of Education (1944), 20,000 Kamdars will be required during thi next 10-15/ years for the Central and Provincial Agriculture Department.

A regular system of training is necessary for these agricultural technicians, fieldmen of kamdars so that in addition to practical training they may have understanding of the elementary scientific principles underlying agricultural practice and so prove to be efficient workers instead of forming merely a class of inefficient labour, as many of them tend to be at present. This training should be given by the Agricultural School and colleges.

The defects which have been pointed out may be attributed to the initial low standard of the students admitted (especially in agricultural colleges where matriculation is the requisite qualification for admission), the difficulty of study in a foreign language, the lower emoluments of the teachers, lack of leisure for the teachers to do research, inadequate library and laboratory facilities, poor equipment and insufficient personal attention to students arising mostly from inadequate personnel for training. Modern agricultural science is a complex and highly developed subject, and requires adequate equipment and highely trained teachers if proper instruction is to be imparted to students.

Various estimates have been made of the number of agricultural graduates which will be required in the next few years. According to the estimates in the Kharegat Memorandum, the Indian Union comprising 177 districts will require for extension work in the Provinces, 44 Assistant Districts; 176 Superintendents, one for each districts; 1,056 inspectors, one for each tensil; 5,280 agricultural supervisors, one for each circle; and 31,400 Fieldmen, one for each union. The Agricultural Education Committee of the Central Advisory Board of Education estimated that for the development of agricultural and animal husbandry in the whole of India during the next 10 to 15 years, 300 gazetted officers, 20,000 field assistants will be required non-graduate Assistants, 20,0 for the agricultural Departments and 550 gazetted offices, 4,000 inspectors (graduates) and 20,000 stockmen will be required on the animal husbandry side. For the extension of promising result of research to the cultivator's fields, the technical personnel required as recommended by Dr. A. B. Stewart will be 1232 field experiment assistants (basic qualifications, graduates of agriculture) at the rate of seven for each district; 1232 soil surveyors at the same rate; and 176 statisticians at the rate of one for each districts. These figures are for the Indian Dominion only. The requirement of trained personnel for the Central Institutes have been discussed later.

Compared with the annual output of graduates, which was about 270 and licentiates which was about 290 in 1939-40. (later figures not available), the numbers given in the preceding paragraphs require a very large increase in the output of agricultural graduates and of men trained for agricultural research.

The question is how an immediate increase in number can be achieved. Although it is not possible to given an estimate of actual increase in numbers one way is to introduce a shift system so as to utilise fully the existing laboratory facilities. This will, however, mean that the number of teachers will have to be increased. To provide for this and for additional accommodation and equipment which may be necessary, the Government should make block grants. It should also be possible to establish a Faculty of Agriculture in many universities where this has not been done. Much of the training can be given immediately and economically and also supplementary facilities should not be difficult to arrange. In order that an estimate of the sums actually required and of what can be done immediately to secure diversification of the regular courses of studies and introduction of supplementary courses may be obtained without delay, the Scientific and Technical Man Power Committee should arrange that some of its members may visit the different centres for personal consultation with the Universities. Heads of the Colleges and Institutes

concerned, and make their recommendation before the end of three months

The action suggested above is in respect of immediate needs only, but it would, however, help the formulation of long-term plans. For securing a balanced development of agricultural training keeping in view the considerations which have been discussed above, it is essential that a Council of Agricultural Education on which both the Centre and the Provinces are represented should be immediately established. It should not be unwieldy in size and consist of representatives of the Central Department of Agriculture, the Universities, Agricultural Colleges, Provincial Departments of Agriculture and the Central training institutes. The Council, should be able to submit its report on the short-term aspects within the next six months.

Another immediate necessity is the establishment of farms with a minimum of equipment in each region, characterised by distinctive climatic and soil conditions. Some of the existing experimental stations and smaller farms may be developed for this purpose, but many will have to be located in new sites. The evolution of suitable cropping systems and correlated soil-crop management, which will improve and maintain soil fertility, give an over all optimum yield of crops over a long time and meet local regional and national needs, should form one of the major items in our poll of agricultural research and development. In view of the many Commodity Research stations and institutes which deal only with the needs of particular crops as distrint from a cropping system characteristic of soil and climatic regions, it is necessary to consider immediately how the Commodity stations could be fitted into the objective mentioned above. Research and Development in agriculture are intimately connected and to ensure their balanced development a conference of the Directors of Central Research Institutes, and of Commodity stations and representatives of Provincial Departments of Agriculture in charge of research should be called to consider scientific aspects and evolve a plan of development of research extension and advisory work.

Universities: The universities constitute the main source of supply of science graduates and I. Scs/ required for specialisation in special branches of science including the agricultural sciences; and it is to the universities that we must look for an increase in the output of such trained men. The remarks already mad about the variability and low standard of teaching apply in some measure to the universities also. Besides expansion of what is being done at present in the way of training, it isnecessary to effect improvement both in the variety and the standard of the subjects taught. An aspect of the development of scientific training which requires immediate attention is the desirability of introducing something like the 'unit' system prevalent in the U.S.A. This will enable a greater flexibilty in the choice of subjects for degree courses as also for supplementary courses of instruction.

Many branches of science are neglected or even entirely omitted. For example, most universities teach Botany but this is done in a general way and systematic botany is not given proper attention. The science of netics which is so important for a proper study of livin things, if taken up at all, is finished in four or five lectures. Numerous such examples should be given. The result is that students who admitted for postgraduate courses in the agric l

ses in the agricultural sciences such as plant breeding, plant pathology, agricultural entomology, etc., do not possess adequate basic knowledge necessary and teaching has to be started from the bottom with the natural result that the standard of training cannot be raised.

As in the case of the agricultural colleges, action which may be taken immediately to increase the output and improve and devise the training is to provide additional teachers and increase the grants. It is suggested that a block grant equivalent to the total expenditure for one year should be immediately given to each university. They should be permitted to carry over to the next year what they cannot spend within the next six months; such bloc grants will enable comprehensive schemes to be drawn up which will be considered later in detail.

The members of the Manpower and Technical Committee which it has been recommended should go round the agricultural Colleges should visit the universities also and make an estimate of their possibilities of improving output as also diversification in so far as they concern agricultural subjects. The Council for Agricultural Education will have as one of its functions the development in the universities of basic sciences related to agriculture.

/True copy/

Development Department

Letter Ms.No. 5315, dated 27th October, 1948

To

Secretary to the Government of India
Ministry of Education,
New Delhi.

Sir,

Sub:- Agricultural Education - Recommendations of the scientific Man Power Committee - Review

Ref:- Your letter No.F. 21-64/47 EIII&P& dated 5.2.1948.

With reference to the several recommendations of the Scientific Man Power Committee on Agricultural Education I am directed to reply as follows:-

(1) Education of agricultural personnel

In this Province there are two well equipped Agricultural Colleges at Coimbatore and Bapatla affiliated to the Madras and Andhra Universities respectively each admitting 96 students annually. Estimated output from both the Colleges is 160 per year The increase in the admission of students from 48 to 96 in these colleges has been done for 1946 in order to provide the personnel for Postwar development and Grow More Food Schemes. The position in this Province regarding the training of personnel is therefore quite satisfactory. This Government have however no objection to the constitution of an All India Advisory Council on Agricultural Education. In this connection I am to point out that at the instance of the Central Advisory Board of Education, the Government of India have already proposed the formation of a Council of Agricultural Education and have called for the remarks of this Government. This is separately under the consideration of this Government.

(2) Speeding up of training programme for Gazetted Staff at the Central Institutions.

As there are already ample opportunities available at the Agricultural Research Institute, Coimbatore, the Agricultural College, Bapatla and various other Agricultural Research Stations in this Province it is not necessary for this Province to depend on the Central Agricultural Institutions for training gazetted staff as suggested by the Committee.

(3) Standard of teaching at the Agricultural College.

The remarks that the general standard of teaching is of low quality is very sweeping. The Principals of the two Agricultural Colleges in this Province have had their training in British Universities and have 25 years of experience as examiners of several Universities. Further, only students who have passed atlast the Intermediate in Arts and Science with suitable science optionals are admitted into the Agricultural Colleges. A number of science graduates also apply for admission. In view of this it is considered that the standard of teaching and training in the Colleges are satisfactory enough and are of the same standard as that obtaining in any British University.

(4) CROP AND ANIMAL HUSBANDY

Due attention is being paid to crop and animal husbandry in the B.Sc (Agriculture) Course. In addition to plant Husbandry, Animal Hygiene is also taught for 2 years in the three year courses. In the final year, a course of lectures and practical classes is given in Animal Husbandry and Drairying. There is also a degree course in the Madras University in Veterinary Science. It is also proposed to institute a Diploma course in the Livestock Research station Hosur, and definite proposals in this regard are awaited from the Director of Animal Husbandry.

(5) Agricultural Ecnomics and Agricultural Engineering:

icultural Economics and Farm Managem it are taught for one year with village and market enquiries in the Agricultural Colleges. Agricultural Engineering Civil And Mechanical are taught in the first and second year respectively. As regards the suggestion that Agricultural Graduates should be apprenticed in the farms, it is felt that there are no properly organised large far in this country

The men turned out by the two Agricultural Colleges have an excellent theoritical knowledge of all the problems relating to agriculture but have not the problems relating to agriculture but have not the proper approach to win the confidence and admiration of the agriculturist, because they are snobbish and superciticus and disdains to put their own hands to the plough. It has been suggested that a 3 or 6 months course in farm within the province or outside it may be prescribed. The matter requires further consideration.

(6) Provision of Advisory Work.

The main activities of the Agricultural Department are advisory work and propaganda. It is also proposed to give the final year students a course of lectures in propaganda methods to train them for posts in the extension service immediately on taking their degree.

(7) Training of Kamadars or Fieldmen

Practical courses for the training of Fieldmen and Miastries have been conducted in this Province at the various Regional Research Stations. As the needs of the Department have been met, these courses have recently been suspended and will be reviewed if and when necessity arises again.

(8) Practical training in farm work after graduation.

There are extensive farms attached to the Agricultural Colleges at Coimbatore and Bapatla and the students taken part throughout the three years course in field operations for not less than six hours a week. It is therefore considered that there is no necessity for a separate post-graduate farm training

(?) Expansion of Universities.

There are no remarks to offer on this recommenda

Yours faithfully,
(Sd) x x x

Copy to the Director of Agriculture with reference to his letter No. X-1.910/48, dated 23.8.1948. His attention is invited to the last sentence in the paragraph under "Crop and Animal Husbandry" of the letter and he is requested to state whether practical training is not necessary ~~in~~ for the students in Animal Husbandry and Dairying.

Copy to E.Section.

(Issued as letter Ms.5315, Development dated 27.10.1948.)

True copy/

OFFICE ASSISTANT
MADRAS RECORD OFFICE

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